NOV 0 3 1977

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BELL LABORATORIES

SUPPORTING INFORMATION

CATEGORY	NUMBER
PROGRAM LISTING	PR-3H254-02 PR-3H255-02
SCHEMATIC DRAWING	SD-3H912-02

ELECTRONIC SWITCHING SYSTEMS NO. 3

MISCELLENEOUS FIXED ALARMS

AT&T CO
Provisional

PK-3H302-01-A1
17 PAGES

E-8430 (1-71) PRINTED IN U.S.A.

APPLICATION

1. INTRODUCTION

This document provides a description of the Miscellaneous Fixed Alarms which includes: how the alarms are defined, the type of alarms provided, and procedures to clear troubles if a miscellaneous fixed alarm occurs.

2. DEFINING MISCELLANEOUS ALARMS

2.01 The miscellaneous alarms consist of 14 groups of scan points in the master scanner rows, 16 through 27 (see Figure 1 and Table 1). Each of these scan points is defined in translations via office data provided initially with the office or can be defined by the message RC:SP.

2.02 This message is used to define, change, or delete a miscellaneous scan point in the master scanner (rows 16 through 17). This message defines each scan point as:

(a) Active - Activate the scan point as not active.
Inactive - Ignore the scan point.

(b) The scan point is assigned to a user group by giving it a USERID (0 through 63). The user groups will be described later in this document.

(c) One of eight classes of alarms is associated with each scan point if it is alarmed. The alarm classes are:

=0 alarm class determined internally (ie, fixed under program control)

=1 major

=2 minor

=3 major power

=4 minor power

=5 major fuse

=6 minor fuse

=7 critical

(d) The normal states of the circuits are:

OPEN - The circuit is normally open. A closed circuit (saturated scan point) will cause an alarm.

CLOSED - The circuit is normally closed. An open (unsaturated scan point) will cause an alarm.

2.03 For more details see IM-3H30001.

3. MISCELLANEOUS TELEPHONE COMPANY ALARMS

x tt REPT MISCT row point xxxx OFN
NORM

USERID=45

3.01 This group is provided to the operating companies for any desired alarm not covered by any other group. Examples of their usage are:

(a) Subscriber loop multiplexor alarms

(b) 1A concentrator alarms

(c) any other alarm

3.02 To assign an alarm to this group the RC:SP input message should be used.

3.03 Whenever one of these scan points changes, the TTY message is printed and the assigned alarm is given. The SPNs message indicates any scan points not assigned.

4. CARRIER GROUP ALARMS

x tt REPT CGA row point xxxx OFN
NORM

USERID=46

4.01 This group is provided for the assignment of carrier group alarms via the RC:SP message.

4.02 Whenever one of these scan points changes, the TTY message is printed and the assigned alarm is given. The SPNs message indicates any scan points not assigned.

5. TOLL ALARMS

x tt REPT TOLL row point xxxx OFN
NORM

USERID=47

5.01 This group is provided for the assignment of toll equipment alarms via the RC:SP message.

5.02 Whenever one of these scan points changes, the TTY message is printed and the assigned alarm is given. The SPNs message indicates any scan points not assigned.

6. MISCELLANEOUS RINGING AND TONE PLANT ALARMS

x tt REPT RT row point OFN
NORM

USERID=51

6.01 This group consists of four scan points that give indications of the nonduplicated portion of the ringing and tone plant. If this message is printed with an alarm, the following procedure should be used:

(a) Determine which RT is active by typing OP:RT:STAT!

(b) Remove the nonactive RT by typing RMV:RT p!

(c) Diagnose the out of service RT typing DGN:RT p!

(d) Use the Trouble Locating Manual (TLM) and correct the problem.

(e) Restore the RT by typing RST:RT p!

6.02 See Table A for the four scan points included in this group.

TABLE A
MISCELLANEOUS RINGING AND TONE PLANT ALARMS

SCAN POINTS	CONDITION
SPN 0, 17, 3	Operation of the Overload Announcement Circuit This is a nonalarmed scan point which will print a message whenever the Overload Announcement Circuit is activated.
SPN 0, 17, 4	Receiver Off Hook Monitor (ROH) This point checks for no voltage, from the ROH generator. If this point goes OFN a minor alarm will be given.
SPN 0, 18, 3	Audible Ring Emergency Manual Line Output
SPN 0, 18, 4	Ringing Distribution Fuse Alarm This point goes OFN whenever a ringing distribution fuse on the miscellaneous power frame is blown out. A major fuse alarm is associated with this point.

7. +24 VOLT POWER ALARMS

x tt REPT PWR A xxxx

NORM
OOL
MOFF
FAIL

USERID=52

7.01 This group consists of two coded scan points which provide information on the +24 V converters.[1] If the out-of-limits (OOL) or failure (FAIL) messages are printed, the following procedure should be used.

(a) Determine which RT is active by typing OP:RT:STAT!

(b) Remove the standby RT by typing RMV:RT p!

(c) Diagnose the RT by typing DGN:RT p!

(d) Correct the problem using the TLM.

1. The +24 Volt converters are not part of the ringing and tone plant. However, this diagnostic does test the +24 volt converters and will provide trouble location information.

(c) Restore the RT by typing RST:RT p!

7.02 The two scan points used for the +24 V converter power alarms are 0, 26, 9 and 0, 26, 10. See Table B for the four possible status areas.

TABLE B
+24 VOLT POWER ALARMS

0, 26, 10	0, 26, 9	Condition
0	0	A +24 V converter is normal (NORM).
0	1	A +24 V converter is out of limits (OOL). This produces a minor power alarm.
1	0	A +24 V converter is manually powered off (MOFF).
1	1	A +24 V converter is not working or a +24 V output fuse is blown (FAIL). This is a major power alarm.

7.03 Two additional scan points provide additional information:

TABLE C
ADDITIONAL +24 VOLT POWER INFORMATION

SPN 0, 20, 11	This point indicates that a +24 V converter, 130 V converter or a +48 V converter on the B bus is not normal.
SPN 0, 22, 8	This point indicates that a +24 V converter, 130 V converter or a +48 V converter on the A bus is not normal.

7.04 The status of these scan points is given in the xxxx field of the TTY message printed as follows:

BIT	BUS
0=1	B
1=1	A

8. 151 POWER PLANT ALARMS

x tt REPT PWR B row point xxxx OPN
NORM

USERID=53

8.01 This group prints the TTY message and gives an alarm whenever there is a 151 power plant failure or if a rectifier is turned off.

TABLE D
POWER PLANT ALARMS

SCAN GROUP	CONDITION
SPN 0, 16, 0	-48 volt rectifier 1 is manually turned off, has failed, or the breaker for the rectifier has tripped.
SPN 0, 16, 1	-48 rectifier 2 is manually turned off, has failed, or the breaker for the rectifier has tripped.
SPN 0, 16, 4	-48 volt rectifier 4 is manually turned off, has failed, or the breaker for the rectifier has tripped.
SPN 0, 17, 0	-48 volt rectifier 5 is manually turned off, has failed, or the breaker for the rectifier has tripped.
SPN 0, 17, 1	-48 volt high voltage alarm indicated. Repair procedure: Individually turn off and on the rectifiers until the plant voltage is below 52.85.
SPN 0, 17, 2	-48 volt low voltage alarm indicated. Receivers are turned off or have failed.
SPN 0, 18, 0	-48 volt low voltage alarm is indicated.
SPN 0, 18, 1	-48 volt minor fuse alarm.
SPN 0, 26, 8	-48 volt main feeder fuse alarm is activated. Repair procedure: Refer to TOP 233-142-100.

9. 130 VOLT POWER ALARMS

x tt REPT PWR C row point xxxx OFN
NORM

USERID=56

9.01 This group consists of three scan points which provide information on the 130 V converters. If the previous message is printed and an alarm is given, the following procedure should be used: Refer to Top 233-142-100 and Top 236-238.

9.02 The three scan points used for the 130 V converters are: (See Table E)

TABLE E
130 VOLT POWER ALARMS

SCAN POINTS	CONDITIONS
SPN 0, 24, 11	130 volt converter failure indicated. This gives a minor power alarm.
SPN 0, 24, 12	130 volt converter fuse alarm indicated. This gives a major fuse alarm.
SPN 0, 25, 10	130 volt converter manually off.

Note: If a 130 V converter is manually turned off, SPN 0, 24, 11 will also change to the OFN state. The software that causes the TTY message to be printed detects this condition and protects against erroneous power alarms being given.

9.03 Two additional scan points provide information on which power bus any 130 V converter OFN conditions (See Table F).

TABLE F
ADDITIONAL INFORMATION FOR 130 VOLT POWER ALARMS

SCAN POINTS	CONDITIONS (OFN)
SPN 0, 20, 11	This point indicates that a +24 volt converter, 130 volt converter or a +48 volt converter on the B bus is not normal.
SPN 0, 22, 8	This point indicates that a +24 volt converter, 130 volt converter, or a +48 volt converter on the A bus is not normal.

9.04 The states of these scan points are given in the xxxx field of the TTY message.

BIT	BUS
0=1	B
1=1	A

10. +48 VOLT POWER ALARMS

X tt REPT PWR D row point xxxx OFN
NORM

USERID=57

10.01 This group consists of three scan points which provide information on the +48 V converters. Whenever one of these points changes, the previous message is printed.

10.02 Ringing and tone plant recovery is notified whenever one of these scan points changes, because +48 V provides superimposed ringing. Therefore, whenever a +48 V converter is manually powered down, the corresponding RT should be manually removed from service using the RMV:RT p! message.

10.03 Whenever there is a +48 V converter failure, the above message is printed and the appropriate RT will be removed from service. To correct this condition, normal ringing and tone plant repair procedures should be followed.

TABLE G
+48 VOLT POWER ALARMS

SCAN POINTS	CONDITIONS
SPN 0, 27, 8	+48 volt converter failure is indicated. This gives a major power alarm.
SPN 0, 27, 9	+48 volt converter fuse alarm is indicated. This causes a major fuse alarm.
SPN 0, 27, 10	+48 volt converter manually off.

Note: If a +48 V converter is manually turned off, SPN 0, 27, 8 will also change to the off normal (OFN) state. The software that causes the TTY message to be printed detects this condition and protects against erroneous power alarms.

10.04 Two additional scan points provide information on which power bus any +48 V converter other than normal conditions (OFN). (See Table H.)

TABLE H
+48 VOLT CONVERTER OFN CONDITIONS

SPN 0, 22, 8	+24 volt converter, 130 volt converter, or a +48 volt converter on the A bus is not normal.
SPN 0, 20, 11	Indicates that a +24 volt converter, 130 volt converter, or a +48 volt converter on the B bus is not normal.

10.05 The states of these scan points are given in the xxxx field of the TTY message.

BIT	BUS
0=1	B
1=1	A

11. MISCELLANEOUS FIXED ALARMS

x tt REPT MISC A row point xxxx OFN
NORM

USERID=58

11.01 This group is a conglomeration of scan points which print the TTY message and give the appropriate alarm whenever one of its scan points changes. Following is a list of the scan points in the group and comments concernings areas to be checked after this TTY message is printed (See Table I).

TABLE I
MISCELLANEOUS FIXED ALARMS

SCAN POINTS	CONDITIONS
SPN 0, 19, 0	Tape Data Controller Major Power Failure Check for a blown +24 volt or -48 volt fuse on the maintenance frame. Also check the 5 volt converters on the tape data controllers.
SPN 0, 18, 2	Toll Distribution Fuse Alarm
SPN 0, 19, 1	TTY Controller Major Power Failure Check for a blown +24 volt or -48 volt fuse on the maintenance frame.
SPN 0, 19, 2	System Status Panel Major Power Failure. Check for a blown +24 volt or -48 volt fuse on the maintenance frame. Also check the 3 volt converters on the maintenance frame.
SPN 0, 19, 4	System Status Panel Power Switch The system status panel is manually turned off.
SPN 0, 19, 4	Emergency Manual Line Transfer The EMER LINE TRFR key on the system status panel is depressed.
SPN 0, 20, 3	Maintenance Frame Converter Out of Limits This is caused by an out of tolerance voltage from a dc-dc converter in the maintenance frame. Replace the converter
SPN 0, 20, 12	Fuse alarm for trunks, junctors and service circuits. Check for a blown fuse on a control frame or a network frame.
SPN 0, 20, 13	Fuse Alarm for Line Ferrods Check for a blown fuse on a network frame.
SPN 0, 25, 12	Commercial power failure

TABLE I (Cont'd)
MISCELLANEOUS FIXED ALARMS

SCAN POINTS	CONDITIONS
SPN 0, 25, 11	Battery Boost Alarm A TTY message (with alarm) will be printed whenever a battery boost converter is manually turned off, a converter shuts itself off due to a momentary voltage surge, or a converter has failed.
SPN 0, 26, 12	AC Distribution Failure Check the power switch on the DC/AC inverter. Check the feeder fuse to the DC/AC inverter.

The following repair procedure should be followed if the converter is manually turned off.

1. Turn the manual converter on.
2. Type TST:BB! to test the Batter boost converters. If this test replies with REPT BB NORM, the converters are back in service.
3. If this test replies with REPT BB OFN, manually check the battery boost converters.

12. BUILDING ALARMS

x tt rept bldg row point xxxx OFN
NORM

USERID=59

12.01 There are 16 building alarm scan points available which will print the previous message, give the appropriate alarm, and turn on/off the BLDG lamp on the system status panel (SSP) whenever a change is detected.

12.02 These scan points are the only scan points available for building alarms, and must only be used as building alarms. If additional alarms are needed, USERID 45 (Miscellaneous Telephone Company Alarms) should be used.

12.03 All of the building alarms except fire can be suppressed by depressing the INHIBIT BUILDING ALARM key on the SSP.

12.04 Following are the 16 building alarm scan points (See Table J).

TABLE J
BUILDING ALARMS

SCAN POINT	CONDITIONS
SPN 0, 16, 9	Fire alarm This produces a critical alarm ≥ if it goes off normal (OFN).
SPN 0, 17, 8	All of the following Scan Points are assigned via the RC:SP message.
SPN 0, 18, 7	
SPN 0, 19, 6	
SPN 0, 20, 5	
0, 21, 10	
SPN 0, 22, 13	
SPN 0, 22, 14	
SPN 0, 22, 15	
SPN 0, 24, 0	
SPN 0, 24, 1	
SPN 0, 24, 2	
SPN 0, 25, 0	
SPN 0, 25, 1	
SPN 0, 25, 2	
SPN 0, 26, 0	

13. ALARM BATTERY ALARM

x tt REPT ALMBATA row point xxxx OFN
NORM

USERID=61

13.01 This group consists of a single point which monitors the alarm battery alarm. The scan points are SPN 0, 21, 15.

13.02 Whenever this point changes to the off normal (OFN) state the message is printed, a major alarm is given, and the ALARM CIRCUIT lamp on the system status panel is turned on. Repair procedure is as follows: Check the fuses for the alarm battery supply on the miscellaneous power frame.

14. 4A TIMER

x tt REPT 4A-TIMER row point xxxx OFN
NORM

USERID=60

14.01 This group consists of a single scan point (SPN 0, 23, 12) for the future use of a 4A timer. Whenever this scan point changes, the TTY message is printed and the assigned alarm is given.

15. CONTROL UNIT 0 POWER ALARMS

x tt REPT CUOPWR row point xxxx OFN
NORM

USERID=62

15.01 This group consists of three scan points which will print the TTY message and give the appropriate alarm whenever control unit 0 (CU0) power is manually turned off or CU0 has a power failure. Following is a list of the points that should be checked whenever the TTY message is printed.(See Table K.)

TABLE K
CONTROL OMIT 0 POWER ALARMS

SCAN POINTS	CONDITION
SPN 0, 22, 11	CU0 is manually powered off.
SPN 0, 22, 10	CU0 minor power failure indicating converter trouble. Look for a converter LED that is on.
SPN 0, 22, 9[3]	CU0 major power failure. This can be a difficult problem to find because the frame will power itself off.

[3] Repair procedure is as follows:

(a) Check for a blown fuse. If a blown fuse is found, replace it, and depress the RESET power key.
(b) If not, depress the RESET power key to see if it was a temporary power problem.
(c) Remove the memory planes. Insert a memory pack and power up the frame. Power off the frame and repeat this procedure until the frame will not power up. Replace any pack that will not allow the frame to be powered up. Continue until the frame is up. Then diagnose CU0.

16. CONTROL UNIT 1 POWER ALARMS

x tt REPT CU1PWR row point xxxx OFN
NORM

USERID=63

16.01 This group consists of three scan points which will print the TTY message and give the appropriate alarm whenever Control Unit 1 (CU1) power is manually turned off or CU1 has a power failure. Following is a list of the points and a description of the areas to be checked whenever the TTY message is printed. (See Table L.)

TABLE L
CONTROL UNIT 1 POWER ALARMS

SCAN POINTS	CONDITION
SPN 0, 24, 5	CU1 is manually turned off.
SPN 0, 24, 4	CU1 minor power failures indicating converter trouble. Look for a converter LED that is on.
SPN 0, 24, 3[4]	CU1 major power failure. This can be a difficult problem to find because the frame will power itself off.

[4] Repair procedure is as follows:

(a) Check for a blown fuse. If a blown fuse is found, replace it and depress the RESET power key.
(b) If not, depress the RESET power key to see if it was a temporary power problem.
(c) Remove the memory planes. Insert a memory pack and power up the frame. Power off the frame and repeat this procedure until the frame will not power up. Replace any pack that will not allow the frame to be powered up. Continue until the frame is up. Then diagnose CU1.